

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

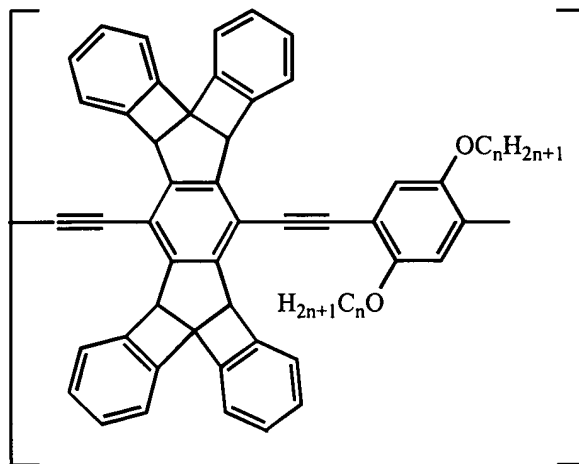
1. (currently amended): A chemical sensor intended for the detection of a type of molecule comprising :

a fluorescent material capable of forming :

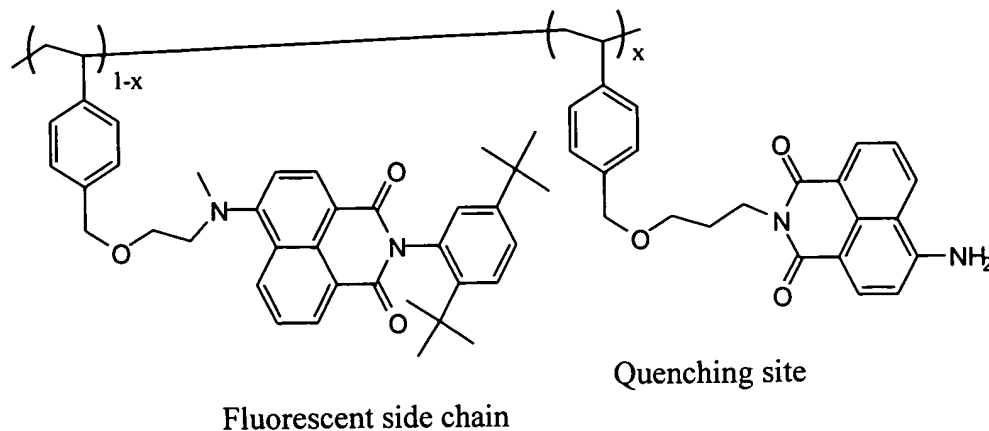
a charge transfer complex with the type of molecule to be detected; and

means for measuring the variation in fluorescence of said material, ~~characterized in that~~ wherein it additionally comprises a filter comprising a polymer material comprising ~~[""]~~ molecularly imprinted ~~[""]~~ cavities, the geometric and chemical configuration of which is defined so as to fix the type of molecule to be detected.

2. (currently amended): The sensor as claimed in claim 1, ~~characterized in that~~ wherein the fluorescent material is a polymer comprising a π -conjugated chain of the following type

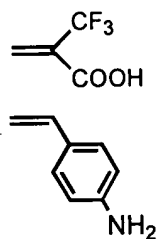


3. (currently amended): The sensor as claimed in claim 1, ~~characterized in that~~
wherein the fluorescent material is a polymer comprising side chains of the following type:

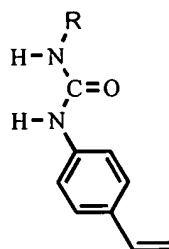


4. (currently amended): The sensor as claimed in ~~one of the preceding~~ claim[[s]] 1,
~~characterized in that~~ wherein the polymer material comprising [""], molecularly imprinted[[""]]
 cavities is synthesized from functional monomers which make it possible to generate interactions
 of hydrogen bond type

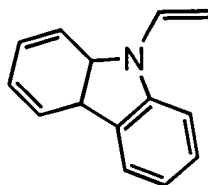
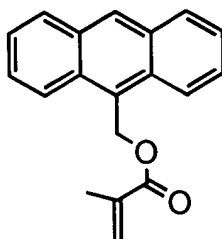
Monovalent



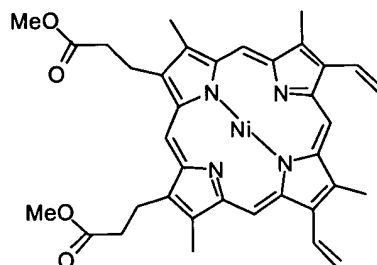
Bivalent



or of π - π interactions type



or of metal-ligand complexes type



5. (currently amended): The sensor as claimed in ~~one of the preceding~~ claim[[s]] 1, ~~characterized in that~~ wherein the fluorescent material is deposited as a thin layer at the surface of at least one first substrate.

6. (currently amended): The sensor as claimed in ~~one of the preceding~~ claim[[s]] 1, ~~characterized in that~~ wherein the polymer material comprising [""]molecularly imprinted[[""]] cavities is formed at the surface of a membrane or at the surface of microbeads held in a porous support positioned perpendicular to the charged stream or positioned parallel to the gas stream and arranged in a column of chromatography column type.

7. (currently amended): The sensor as claimed in ~~one of the preceding~~ claim[[s]] 1, ~~characterized in that~~ it comprises comprising a pump for sucking in an external medium charged with the type of molecule to be detected.

8. (currently amended): The sensor as claimed in the ~~preceding~~ claim 1, ~~characterized in that it comprises~~ comprising a source of inert gas, which can be nitrogen, positioned downstream of the pump in order to transport the molecules to be detected towards the cavity polymer material.

9. (currently amended): The sensor as claimed in ~~one of the preceding~~ claim[[s]] 1, ~~characterized in that it comprises~~ comprising a removable shutter which makes it possible to separate the cavity polymer material from the fluorescent material.

10. (currently amended): The sensor as claimed in ~~one of the preceding~~ claim[[s]] 1, ~~characterized in that~~ wherein the means for detecting variation in fluorescence comprise a light source for illuminating the fluorescent material and photodetection means for collecting at least a part of the light emitted by the complex formed between the fluorescent material and the molecules to be detected or detecting its reduction therein following the formation of the complex.

11. (currently amended): A method for chemical detection of a type of chemical molecule by a sensor as claimed in ~~one of claim~~[[s]] 1 to 10, ~~characterized in that it comprises~~ comprising the following ~~stages~~ steps:

- [[-]] ~~the capture~~ capturing of the type of molecules to be detected by the polymer material comprising [["]]molecularly imprinted[["]] cavities,
- [[-]] [[the]] desorption of said molecules by a secondary gas stream after capture by the polymer material,
- [[-]] [[the]] formation of a complex between the fluorescent material and the molecules to be detected by movement of the gas stream, charged with molecules to be detected, to the fluorescent material,
- [[-]] [[the]] measurement of variation in fluorescence between the fluorescent material and the complex formed.

12. (currently amended): The method for chemical detection as claimed in claim 11, ~~characterized in that~~ wherein the capture of the type of molecules to be detected is carried out with a pump, so as to collect a primary stream external to the sensor charged with molecules to be detected.

13. (currently amended): The method for chemical detection as claimed in ~~either of~~ claim[[s]] 11 ~~and 12, characterized in that it comprises~~ comprising the closing of a shutter which makes it possible to isolate the polymer material comprising cavities from the fluorescent material during the capturing operation.

14. (currently amended): The method for chemical detection as claimed in claim 13, ~~characterized in that it comprises~~ wherein the opening of the shutter during the desorption operation, so as to send the secondary stream charged with molecules to be detected in the direction of the fluorescent material.